NOTES.

The Laboratory of the Marine Biological Association at Plymouth is now approaching completion, and, after the opening ceremony on the 30th inst., it will be, in all essential respects, ready for work. The salt-water reservoirs have, after several delays, been filled, and the water is now circulating freely in the tanks of the aquarium. The fittings of the main laboratory are complete on the north side, and will give accommodation for seven naturalists, besides the Resident Director. In addition to this there are the physiological and chemical laboratories, all the fittings of which are now in place, and the library is in process of formation. The Association stands very much in need of presents of books, and it is hoped that those who are interested in its work, and have duplicate copies of biological works on their shelves, will be disposed to present them to so deserving an institution. At the opening ceremony on the 30th, upwards of a hundred members and their friends are expected to be present. The fact that Parliament is in session will keep away many of those who take a liberal interest in the Association, but it is hoped that Sir Lyon Playfair, Sir Edward Clarke, and Sir Edward Birkbeck will be present to represent the Parliamentary interest. Prof. W. H. Flower will be the presiding zoologist, and with him will be many well-known men of science, including Profs. Ray Lankester, Milnes Marshall, McIntosh, C. Stewart, Dr. Günther, Mr. Adam Sedgwick, and many others. The Hydrographer has stated his intention to be present, and the naval and military element will be fully represented by the commanding officers of both services at Plymouth. The Fishmongers' Company, which has been so munificent a patron of the Association, will be fully represented by its Prime Warden, Sir James Clarke Lawrence, and several members of the Court. They have kindly undertaken the hospitable duties of the occasion, and there can be no doubt that the *déjeûner* at the Grand Hotel, and the speeches that may be expected to be made there, will form a most important part of the day's proceedings.

The annual meeting for the election of Fellows of the Royal Society was held at the Society's rooms in Burlington House on June 7, when the following gentlemen were elected: Thomas Andrews, F.R.S.E., James Thomson Bottomley, M.A., Charles Vernon Boys, Arthur Herbert Church, M.A., Prof. Alfred George Greenhill, M.A., Lieut.-General Sir William F. D. Jervois, R.E., Prof. Charles Lapworth, LL.D., Prof. T. Jeffery Parker, Prof. John Henry Poynting, M.A., Prof. William Ramsay, Ph.D., Thomas Pridgin Teale, F.R.C.S., William Topley, F.G.S., Henry Trimen, M.B., Prof. Henry Marshall Ward, M.A., William Henry White, M.I.C.E.

Dr. S. H. Vines, F.R.S., Fellow of Caius College, Cambridge, has been elected to the Sherardian Professorship of Botany at Oxford.

The King of Sweden, who was elected an Honorary Member of the Linnean Society at the centenary anniversary meeting of that Society held at Burlington House on May 24 last, gave an audience on Friday afternoon to the President (Mr. W. Carruthers, F.R.S.), Secretaries (Messrs. B. D. Jackson and W. P. Sladen), and Librarian (Mr. Harting), and inscribed his name in the album wherein the names of all Fellows and Honorary Members have been inscribed since 1788. The Royal signatures include those of George IV., William IV., Queen Victoria, Prince Albert, the Prince of Wales, the King of the Belgians, the King of Saxony, and now the King of Sweden.

This week the University of Bologna is celebrating the eighth century of its existence. A congratulatory Greek ode has been written by Prof. R. C. Jebb, who represents the University of Cambridge as its senior delegate at Bologna. The verses, which are composed in the metres of Pindar's eighth Olympian ode, are suggested by the circumstance that the University of Glasgow, in which Prof. Jebb holds the Chair of Greek Literature, is the only University in this country of which the model was taken directly and exclusively from Bologna.

The second annual *soirée* of the Middlesex Natural History and Science Society was held at the Society's rooms, 11 Chandos Street, Cavendish Square, on Thursday evening last. Lord Strafford, the Lord-Lieutenant of the county, President of the Society, was in the chair. Many objects of scientific interest were exhibited.

The Hon. J. Collier has undertaken to paint the portrait of Prof. Williamson, which is to be presented to University College.

The Conferences convened by the London Chamber of Commerce to consider the question of commercial education led to the appointment of a Committee for the full discussion of the subject. This Committee nominated a sub-Committee, among the members of which were Sir John Lubbock, Sir Henry Roscoe, and Sir B. Samuelson. A scheme for the improvement of commercial education has now been drawn up by the sub-Committee and sent to various business men, schoolmasters, and other authorities on education, with a request for practical suggestions. The scheme, as it stands, proposes as obligatory subjects for examination for a commercial certificate: (1) English; (2) Latin; (3*a*) French; (3*b*) German, Spanish, or Italian; (4) history of British Isles and colonies, general and modern history, including commercial history; (5) geography, physical, political, commercial, and industrial; (6) mathematics; (7) drawing. Proficiency is also required in at least one of the following: physics, chemistry, natural history, commerce, and political economy.

Prof. Lütken, Director of the Zoological Museum of Copenhagen, has addressed a strong appeal to country people in Denmark to protect the sand grouse. He points out that the only countries in which the birds nested in 1863 were Denmark and Holland, but that owing to people gathering and eating the eggs no birds were hatched. He trusts that this wanton conduct may not now be repeated. The Professor feels sure that the bird can be acclimatized in Denmark, as the sandy cliffs and shores of that country are particularly suited to its breeding. The Zoological Gardens in Copenhagen have obtained a live specimen of the bird, caught in the Island of Fünen. Flocks upwards of a hundred in number have of late been seen in many parts of Denmark.

One of the largest pine-trees ever grown in Sweden was felled the other day in Lapland. It measured over 120 feet in height, and was 12·5 feet in diameter 2 feet from the ground.

On the evening of May 14, about 10 p.m., a brilliant meteor was seen at Kalmar, in Sweden. It was about the size of an ordinary plate, the colour being pale yellow, and it had a train about 100 feet in length. It went in a north-westerly direction, apparently only some little height above the ground, and exploded some distance from the town with a noise like that of burning gunpowder. During its progress a whizzing sound was distinctly heard.

In vol. iv. Part 4, of the *Indian Meteorological Memoirs*, Mr. J. Elliot gives a list and brief account of the south-west monsoon storms generated in the Bay of Bengal during the years 1882–86. This list, which contains Nos. 47–101 of the series of storms, is a continuation of that given in the sixth paper of the second volume of the *Memoirs*, and is accompanied by yearly and monthly track charts. Some of the principal storms have been fully discussed in previous parts of the *Memoirs* and in the Journal of the Bengal Asiatic Society. The retreat of the south-west monsoon in October 1866 was followed by the occurrence of three cyclones at intervals of about a fortnight. They presented such marked peculiarities that they have been specially investigated. All were generated in the immediate neighbourhood of the Andamans. The first, which began to form on November 2, is an example of a class of storms, of occasional occurrence, which pass across Southern India into the Arabian Sea, and it lasted for a fortnight. It is the first example of its kind which has been fully worked out. The second, which was also a very violent storm, was formed on November 13, and affords a marked illustration of the effect of a mass of land in modifying the motion of a cyclonic disturbance. The third storm formed on December 7, and was in many respects exactly similar to the first, excepting that it was comparatively feeble at sea and short-lived on land.

AT the meeting of the French Meteorological Society on May 1, M. Poincaré presented calculations and synoptic charts showing mean barometric heights at latitude 30° and 10° N., for every day from December 9, 1882, to December 15, 1883, and on the parallels of 40°, 50°, and 20°, for a number of selected days, and pointed out certain relations which he considered existed between the barometric movements at these latitudes, and the positions of the sun and moon, and the effect of these on the displacements of the region of the trade winds. M. Renou made a communication upon the unsatisfactory condition of actinometry, and showed that the values obtained varied according to the instruments used, the force of the wind, &c., and he submitted some of the observations made during seven years at the Observatory of the Parc Saint-Maur. The Secretary presented, on the part of M. Pictre, of Pau, a plan for the graphical representation of local observations, in connection with general weather charts, with the view of facilitating local predictions. M. d Abbadie urged the desirability of developing the study of earthquakes, and offered to give particulars as to an inexpensive form of seismograph, and as to the observations required, to persons willing to undertake such investigations.

THE Committee of the Association for the Oral Instruction of the Deaf and Dumb have issued their Report for 1887. They express much regret that in a great many instances the children are too early removed from the school established by the Association. Parents and guardians appear to think that as soon as a fair amount of speech and lip-reading has been acquired there is no longer any need for special training. Notwithstanding this drawback, the Committee feel assured that in each year the friends of oral instruction increase in numbers, and that the time is not far distant when the manual alphabet and sign language, if retained at all, will exist only as a special requirement for cases of imperfect vision and semi-imbecility. At the Training College two grades of certificates are now granted—first-class for head, second-class for assistant teachers. During the year 1887 eleven female teachers attended the Training College, of whom six obtained first-class, and two second-class certificates.

A NEW edition of Sir Walter Buller's "History of the Birds of New Zealand" has been issued. Without going over identically the same ground, the author gives in this edition a more thoroughly complete account of the birds of a country which is second in interest to none in the world as regards its natural history. A melancholy interest attaches to the avifauna of New Zealand, where so many of the indigenous birds, remains of a most ancient fauna, are either extinct or on the verge of extinction. Sir Walter Buller deserves well of every naturalist for the wonderful pains and energy he has shown in getting together the facts for the life-histories of many of these birds, which in a few years no one will be able to procure, and he has accomplished his task ably. The scientific portion of the work and the full descriptions of the species are as well written as the accounts of the habits. The plates have been done by Keulemans, and produced by chromolithography, but, like all illustrations of birds produced by this process, they are not quite satisfactory. Insects appear to us to be capable of illustration by chromolithography, but birds do not lend themselves so readily to this method. The delay in production is excessive, and the cost very considerable, while the efforts to produce a striking plate result in some loss of exactness in the colouring of the bird, this being not strictly accurate in many cases. That this should result when the best lithographic draughtsman of birds in the world has been employed, and unlimited money been spent on the production of the plates, clearly shows us that chromolithography is, and ever will be, inferior to hand-colouring.

THE fifth monthly part of the "Cyclopædia of Education" (Swan Sonnenschein) has now been issued. The complete work will include about twelve parts.

A SECOND edition of Mr. S. R. Bottone's "Electrical Instrument-making for Amateurs" (Whittaker and Co.) has just been issued. In compliance with the request of several correspondents, the author has added a short article on the telephone.

SIR DAVID SALOMON'S useful "Management of Accumulators and Private Electric Light Installations" (Whittaker and Co.) has already reached a fourth edition. The author has thoroughly revised the work and made some additions, including the "Rules and Regulations for the Prevention of Fire Risks," as laid down by the Committee of the Society of Telegraph-Engineers and Electricians.

MESSRS. GUY AND CO., at Cork, and Messrs. Simpkin, Marshall, and Co., London, have published a "Guide" to what the enthusiastic author calls "the most picturesque tour in Western Europe." By this he means a tour in the south-west of Ireland. The little volume is illustrated.

MR. LELAND'S work on "Practical Education" has reached a second edition. He will now follow up the ideas set down in this book by a series of illustrated hand-books on the minor arts and industries. The series will begin with a manual on "Drawing and Designing."

"A FRESH-WATER YARN," an illustrated account of a boat-voyage up the River Avon, is announced for immediate publication by Mr. Elliot Stock.

MR. T. FISHER UNWIN is about to publish a second edition of Mr. Edward Newman's "Birdsnesting and Bird-skinning." The work has been revised, and practically re-written, with, in addition, directions for the collection and preservation of birds, and a new chapter on bird-skinning, by Miller Christy.

MESSRS. E. AND F. N. SPON have in preparation "The Drainage of Fens and Low Lands by Gravitation and Steam Power," by W. H. Wheeler; "Practical Notes on Pipe Founding," by James W. Macfarlane; and "A System for the Construction of Crystal Models on the Type of an Ordinary Plait," by John Gorham.

THE administrators of the schools of the Caucasus have just brought out the first volume of the works of the late General Uslar. No explorer of the Caucasus has done so much as Uslar did for the ethnography of the region, yet his works are little known. In 1862 he published his remarkable researches into the Abkhazian language, and laid the foundations for a rational, most appropriate, and easy transcription of this and other Caucasian languages. Later on, he brought out similar works on the languages of the Tcherkesses, Avarians, Lakhes, and so on. He did not merely compile more or less perfect vocabularies of each language, but thoroughly learned each in turn, with the help of natives, and he considered his work worthy of publication only when he could bring out an elaborate grammar. Unhappily all his works were merely lithographed in a limited number of copies. Now the first volume has appeared at Tiflis under the title of "Ethnography of the Caucasus." It contains Uslar's work on the Abkhazian language, and several smaller articles on the principles of transcription of the Caucasian languages; on the languages of the Tcherkesses and Ubykhes; and on the grammar of the Svanetian language.

THE sporadic geographical distribution of the *Aldrovandia vesiculosa*—an aquatic plant of the family of Droseraceæ—long ago attracted the attention of botanists. Grisebach and De Candolle discussed it, and Caspary made it the subject of two well-known monographs, trying to explain the strange distribution of the *Aldrovandia*, a few individuals of which had been discovered, after much hunting for them, in localities so far apart as Arles, Bordeaux, and a very few other places in France; at isolated spots in Italy, Tyrol, and Hungary; in Silesia; about Pinsk in Lithuania; and at Calcutta. Since Caspary wrote, it has been discovered also in Brandenburg, South Bavaria, and at two other spots in Prussia. Schweinfurth discovered it in Central Africa, and Ferd. Müller in Australia; and Russian explorers have found it on the Lower Amu-daria, and in the delta of the Volga. Taking up again the whole question as to the causes of its sporadic extension, in the *Trudy* of the Kazan Society of Naturalists (vol. xvii. fasc. 1), M. Korzchinsky shows that in the delta of the Volga it grows especially in thickets of rushes. There, in the most inaccessible parts of the thickets, the water is covered with flowers of the *Aldrovandia*, while in open places it is very scarce, and the few individuals discovered rarely flower. MM. Herbich and Berdan noticed the same circumstance on the Tiniecki Lake about Cracow; and M. Korzchinsky concludes that the *Aldrovandia vesiculosa* is a feeble plant which cannot compete with other aquatic plants, and is thus compelled to seek for refuge in the shaded spots amidst the rushes where no other aquatic plants grow. The spots where the *Aldrovandia* grows now must be regarded as a few remnants of a wide region over which it formerly extended, and M. Korzchinsky compares it in this respect with the *Trapa natans*, which is also disappearing.

How far north did the Caspian Sea extend during the post-Pliocene period? This question has often been considered by geologists and geographers. Marine deposits, undoubtedly Caspian—that is, containing a fauna which is now characteristic of the Caspian Sea—have been recently found as far north as the Samara bending of the Volga; so there can be no doubt that during the post-Pliocene period a gulf of the great Aral-Caspian basin penetrated north, up the present valley of the Volga, as far as the 54th degree of north latitude. A few years ago Prof. Golovkinsky raised the question whether the post-Pliocene sediments which fill up the great depression on the middle Volga at its junction with the Kama, were not also deposited in a great lake which stood in connection with the Caspian; and this question is now answered by M. Netchayeff, who has investigated these deposits. He communicates to the Kazan Society of Naturalists (*Trudy*, vol. xvii. fasc. 5), that the brown-yellow sandy clays on the Kama about Tchistopol (55° 20′ N. lat.), contain the following fossils: *Dreyssena polymorpha*, most characteristic of the Aral-Caspian deposits all over the Trans-Caspian region, *Pisidium fontinale*, *Paludina achatina*, *P. impura*, *Limnæus fuscus*, *Helix pulchella*, and the *Hydrobia caspia* (Eichwald). The latter, according to Grimm, is one of the forms now in the Caspian Sea which are found only in that sea. We must therefore conclude that the Kazan depression of the Volga, now about 150 feet above the sea-level, *i.e.* 235 feet above the level of the Caspian, was a part of that sea at a period so close to our own as the post-Pliocene.

THE cod and whale fisheries in the north of Norway have entirely failed this spring, and it is suggested that the non-appearance of the former is due to the low temperature of the sea this season. Thus the Russian naval officers stationed on the Murman coast found in May only a surface temperature of from 1° to 2° C., and along the Norwegian coast it has been lower still. As to the whale-fishing, only 40 animals had been captured by the end of April against 200 last year. It is maintained that the present wholesale slaughter carried out by Norwegian and Russian steamers equipped with harpoon guns will eventually extirpate these animals, and some measure for their preservation is contemplated. Advices from the Arctic regions state that there was an enormous mass of drift-ice in those waters during this spring. Two sealers, the *Hekla* and the famous *Vega*, were imprisoned for more than a month in the ice to the north-east of Norway.

IN the very useful scientific methods whereby movements record themselves in curves, photography and a point moving on a smoked surface are perhaps those forms which yield the most delicate curves. In the French Société d'Encouragement, M. Mascart has called attention to a useful modification by M. Fénon, in which a bent tube of tempered steel forms a siphon, dipping at one end in a reservoir of ink, and at the other being shaped like a pen point, which is brought near the moving paper (the sloped section outwards). Capillary force prevents outflow when the apparatus is at rest. A fine trace is produced by this pen, without interruption by the most rapid displacements, and without sticking when at rest. M. Wolf, of the Paris Observatory, has used the system for getting records of air-pressure, temperature, wind, &c., with the best results. The reservoir needs charging only once a week; and using inks mixed with glycerine a single charge has been found to suffice for a barometer record of more than six months.

IN a recent interesting lecture, opening his course at the Collège de France, M. Ribot gave a sketch of contemporary psychology. The science in France might be characterized by one expression—"the era of monographs." There was no comprehensive work like that of Wundt in Germany; such were certainly very useful, but, like vast cathedrals, they always needed repair at some point. In psychology proper, the part belonging to logical operations, to reasoning, as principle of the unity of perceptions, had been well studied; and perhaps the most important results had been reached in the study of the nature and physical conditions of the image. The psychology of movements, especially those expressing thought, had yielded a rich harvest; while the great amount of experimentation in hypnotism, and the foundation in 1885 of a Society of Physiological Psychology (impossible twenty years ago), showed the vitality of French studies. In England, the principal contributions were in comparative psychology, represented chiefly by the work of Lubbock and Romanes. Germany was the centre of psycho-physics. Wundt's laboratory at Leipzig, founded in 1879, had acquired great renown, and, last year, had twenty students of different nationalities working in it. M. Ribot justified those studies, which had been rather depreciated in France. The predominating tendency in Italy was criminal psychology (better known as criminal anthropology)—the three chiefs of the school being Lombroso, mainly a biologist; Ferri, a sociologist and statistician; and Garofals, a jurist. It had gained several adherents in France, and there were symptoms of its invading Spain. In the United States, as in Germany, public instruction had almost alone played the part of initiation in the psychological movement; in England, the work had been chiefly done by books (Mill, Bain, Spencer, &c.). Four American Universities now gave special teaching in physiological psychology, and had laboratories, psycho-physics being the dominant study. A journal devoted to experimental psychology was started at the Johns Hopkins University, last November, by Prof. Stanley Hall. The work of James at Harvard was also referred to. Allusion was further made to Russia, which might be expected to take a good place in the psychology of the future.

THE additions to the Zoological Society's Gardens during the past week include five Pea-fowls (*Pavo cristatus*, 2 ♂, 3 ♀) from India, presented by Her Majesty the Queen; a Pagoda Owl (*Syrnium sinense*), a Horsfield's Scops Owl (*Scops lempiji*) from Penang, presented by Mr. C. B. Ricketts; three Grey-breasted Parrakeets (*Bolborhynchus monachus*) from Monte Video, presented by Mrs. Macnab; a —— Gull (*Larus* ——) from Massowah, presented by Mr. D. Wilson-Barker; a Chilian Skunk (*Conepatus mapurito*) from Chili, a Black-necked Swan (*Cygnus nigricollis*) from Australia, a White-throated Monitor (*Varanus albogularis*) from South Africa, purchased; a West Australian Great Kangaroo (*Macropus ocydromus* ♂) from West Australia, two Wandering Tree Pies (*Dendrocitta vagabunda*) from India, received in exchange; a Japaneese Deer (*Cervus sika* ♀), a Burrhel Wild Sheep (*Ovis burrhel* ♀), born in the Gardens.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 *JUNE* 17–23.

(**FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.**)

At Greenwich on June 17

Sun rises, 3h. 44m.; souths, 12h. 0m. 43·7s.; sets, 20h. 17m.: right asc. on meridian, 5h. 45·4m.; decl. 23° 25′ N. Sidereal Time at Sunset, 14h. 3m.

Moon (at First Quarter June 17, 7h.) rises, 12h. 1m.; souths, 18h. 33m.; sets, 0h. 52m.*: right asc. on meridian, 12h. 19·2m.; decl. 2° 56′ N.

Planet.	Rises.	Souths.	Sets.	Right asc. and declination on meridian.	
	h. m.	h. m.	h. m.	h. m.	° ′
Mercury..	5 37 ...	13 43 ...	21 49 ...	7 27·5 ...	21 58 N.
Venus ...	3 19 ...	11 32 ...	19 45 ...	5 16·3 ...	22 57 N.
Mars ...	13 43 ...	19 13 ...	0 43*...	12 58·5 ...	6 38 S.
Jupiter ...	17 36 ...	21 59 ...	2 22*...	15 45·3 ...	18 54 S.
Saturn ...	6 52 ...	14 43 ...	22 34 ...	8 28·0 ...	19 45 N.
Uranus...	13 23 ...	19 3 ...	0 43*...	12 49·3 ...	4 35 S.
Neptune..	2 27 ...	10 12 ...	17 57 ...	3 56·0 ...	18 44 N.

* Indicates that the setting is that of the following morning.

June.	h.	
18 ...	13 ...	Mars in conjunction with and 5° 48′ south of the Moon.
20 ...	15 ...	Uranus stationary.
21 ...	0 ...	Sun at greatest declination north; longest day in northern latitudes.
21 ...	12 ...	Jupiter in conjunction with and 3° 51′ south of the Moon.

Variable Stars.

Star.	R.A.	Decl.			
	h. m.	° ′		h. m.	
U Cephei	0 52·4 ...	81 16 N. ...	June 20,	23 14	*m*
R Virginis	12 32·8 ...	7 36 N. ...	,, 23,		*m*
δ Libræ	14 55·0 ...	8 4 S. ...	,, 22,	2 28	*m*
U Ophiuchi... ...	17 10·9 ...	1 20 N. ...	,, 23,	2 6	*m*
			,, 23,	22 14	*m*
Z Sagittarii... ...	18 14·8 ...	18 55 S. ...	,, 19,	1 0	*M*
			,, 23,	0 0	*m*
η Aquilæ	19 46·8 ...	0 43 N. ...	,, 20,	1 0	*M*
X Cygni	20 39·0 ...	35 11 N. ...	,, 22,	22 0	*m*
δ Cephei	22 25·0 ...	57 51 N. ...	,, 20,	22 0	*m*

M signifies maximum; *m* minimum.

Meteor-Showers.

	R.A.	Decl.	
Near θ Ursæ Majoris	169° ...	55° N.	
,, ζ Cygni	318 ...	32 N.	
Between δ and ϵ Cephei	335 ...	57 N. ...	Swift.

GEOGRAPHICAL NOTES.

THE paper read at Monday's meeting of the Royal Geographical Society was on Hudson's Bay and Hudson's Strait as a navigable channel, by Commander Markham. It was really a brief sketch of a much larger memoir on Hudson's Bay which Commander Markham has prepared, and which will ultimately be published by the Society. For some years investigations have been carried on with a view to discover whether the navigation of Hudson's Bay could be so depended on as to justify its acceptance as a regular trade route, in conjunction with a railway, to the more northerly parts of Canada. Commander Markham briefly sketches the history of navigation in Hudson's Bay, and concludes with the results of his own visit in the summer of 1886 on board the *Alert*. The result, he states, of all the experience gathered from voyages during two centuries, and from observations at the stations, is that Hudson's Strait is perfectly navigable and free from ice in August and later in the season. It must be remembered that this passage has been successfully accomplished nearly every year for the last two centuries, while the vessels that have been employed on the service have been ordinary sailing-ships, dependent entirely on wind and weather. It is very rare indeed that they have failed to get through, and still more rare that any of them have been destroyed by the ice. It appears from the official records of the Hudson's Bay Company that Moose Factory, on the southern shore of the bay, has been visited annually by a ship since 1735, with but one exception, namely in 1779, when the vessel for once failed to achieve the passage of the strait. The percentage of losses by shipwreck among these vessels employed in Hudson's Bay is far less than would have to be recorded in a like number of ships engaged in general ocean traffic. Commander Markham pointed out that until quite recently only sailing-vessels attempted to navigate Hudson's Bay, and maintained that with a properly constructed steam-vessel, there need be neither difficulty nor danger. The establishment of new routes for commerce, Commander Markham concluded, is always a gain to the science of geography. In come cases new regions have to be discovered and explored. In others the physical aspects of an already known region must be more carefully studied, and many points of interest relating to the action of climates, or of winds and currents, may be ascertained. The proposed Winnipeg and Hudson's Bay Railroad is a striking instance. The objections of opponents to the route have had to be carefully examined. All former experience had to be collected, maturely considered, and passed in review. Observatories had to be established at several points, to make certain whether the historical records actually coincided with physical facts as they now exist. The route itself had to be sailed over and explored. All these various researches have been as great a gain to geography as to commerce. They have enriched our science with a fresh stock of information, have revised previous conceptions, and confirmed or rejected, as the case may be, the theories and views which may have been put forward. From this point of view, and from this point of view alone, can commercial or political questions receive consideration here. The study of the Hudson's Bay route involves a problem for which physical geography alone can furnish a solution.

DR. F. H. H. GUILLEMARD has been recommended, by the joint Committee of the Royal Geographical Society and the University, as Lecturer on Geography at Cambridge.

THE *Bolletino* of the Italian Geographical Society for May publishes the map of the Massawa district (Massawa to Saati) prepared to the scale of 1 : 80,000, by Prof. P. Durazzo, with the materials which have been supplied by the Italian Staff officers during the recent military operations in that region. Prof. Durazzo has also now completed his large map in two sheets, scale 1 : 800,000, of all the Italian possessions and protectorates in East Africa. These cartographic works embody the results of all the latest surveys, and contain several new features, as well as some important corrections of existing maps.

OUR ELECTRICAL COLUMN.

THE beautiful illustrations of stress in a dielectric in an electric field, due to Dr. Kerr, have been modified and amplified by Messrs. Rücker and Boys, and were shown to a large audience at the Institution of Electrical Engineers on March 22, and again at the *soirée* of the Royal